

TECHNICAL MEMORANDUM

To: Andrew Bermond, City of Santa Barbara Airport Department
Judi Krauss, Coffman Associates

From: John Davis IV, Dudek Senior Ecologist

Subject: Response to Comment on White-tailed Kites from the California Department of Fish and Wildlife for the Santa Barbara Airport Master Plan Project, Santa Barbara County, SCH #2014061096.

Date: June 5, 2017

Attachment(s): *Figure 1 – White-tailed Kite Occurrences Area*
Figure 2 – Cumulative Study Area

This memorandum is in response to California Department of Fish and Wildlife (CDFW) comments on the Notice of Preparation of a Draft Environmental Impact Report (EIR) for the Santa Barbara Airport Master Plan, Santa Barbara County; SCH #2014061096 (August 6, 2014) and follow-up letters received in response to the Draft and Recirculated Draft Program EIRs (October 29, 2015, and September 12, 2016, respectively).

Under the Specific Comment “Taxiway H Feature,” the CDFW expressed concern that the area on existing Goleta Slough Ecological Reserve proposed for expansion of Taxiway H supports foraging (or more accurately hunting) habitat for the white-tailed kite (*Elanus leucurus*; kite), which is a California fully protected species (CFGF Section 3511), and habitats near known nesting sites are essential to the species’ survival and reproduction in the local and regional area. The CDFW further states that it would consider loss of foraging habitat near known nests to be significant at the project level and to add to cumulative habitat losses in the surrounding area.

This memorandum responds to this comment and concludes: (1) available evidence suggests that low quality foraging habitat for the white-tailed kite exist along Taxiway H, (2) the proposed Taxiway H is located at the extent of typical foraging distances from known kite nesting locations, and (3) the impacts to low quality foraging habitat from development of the proposed extension of Taxiway H would not contribute substantially to the cumulative impact to white-tailed kite foraging habitat in the region.

BACKGROUND

In preparing this memorandum, Dudek reviewed the following documents:

- *Recirculated Draft Program Environmental Impact Report on the Proposed Airport Master Plan for Santa Barbara Municipal Airport, Santa Barbara, California* (City of Santa Barbara 2016);
- California Natural Diversity Database (CDFW 2017);
- *Santa Barbara Airport Wildlife Hazard Assessment* (WHA; Dudek et al. 2016), including raw database;
- *Wildlife Hazard Management Plan* (WHMP; City of Santa Barbara 2017);
- *Raptor and Bird Nesting Survey Report for the University of California, Santa Barbara Long Range Development Plan West Storke Campus* (Dudek 2013);
- County of Santa Barbara Cumulative Projects List (County of Santa Barbara 2017) and associated environmental documents;
- City of Goleta Cumulative Projects List (City of Goleta 2016) and associated environmental documents;
- Santa Barbara Breeding Bird Study (Holmgren and O’Loghlen 2017); and
- Additional resources on white-tailed kite natural history (as provided in the references).

RESPONSE TO COMMENT

The proposed extension of Taxiway H (and a relocated glide scope antenna), identified in the Program EIR as the Taxiway H Airfield Safety Project (Taxiway H project) would occur within a maintained annual brome grasslands with low biological diversity in the northwestern portion of the Santa Barbara Airport (airport) (Exhibit 4B, City of Santa Barbara 2016). Construction would result in disturbance of 12.4 acres of potential kite foraging habitat. The 12.4 acres is composed of 3.5 acres pavement, 2.6 acres shoulder, and 6.3 acres for grading within the taxiway object free area (TOFA)(Exhibit 2D, City of Santa Barbara 2016). White-tailed kites are known to use a variety of open habitats for foraging (e.g., grasslands, wetlands dominated by grasses, low shrub) that contain their preferred small mammal prey: California voles, western harvest mouse, and house mouse (Dunk 1995, Lehman 2017). The Recirculated Draft Program EIR states that kites are encountered occasionally near the area proposed for the Taxiway H Airfield

Safety Project (City of Santa Barbara 2016, p. 4-36). Recent observations during the Wildlife Hazard Assessment (WHA; Dudek et al. 2016) show that kites were virtually absent from the area. During point count surveys conducted four times monthly between December 2014 and November 2015 single kites were observed eight times on the entire Santa Barbara Airport property, only one of these observations was potentially within the proposed Taxiway H, as discussed below (Dudek et al. 2016, Appendix D). Methods for these surveys are designed for determining general areas and habitats where wildlife activity occurs, so locations were recorded only to the level of grid squares within a grid pattern provided by the Santa Barbara Airport.

According to WHA raw data, all white-tailed kite observations were recorded from August 17 to October 14, 2015. Although kite breeding activity in the Goleta area has sometimes been documented within this period, the absence of kites prior to mid-August in 2015 suggests the observations were related to post-breeding dispersal, not foraging by breeding kites. Nearly all observations, if not all, were of individuals in areas south of Runway 7-25. Only two observations were recorded within grid squares overlapping the Taxiway H project site, but one of these was recorded as in “marsh” and within grid square X7 (*Figure 1*), so occurred within Goleta Slough south of Runway 7. Therefore, this individual was not in the immediate Taxiway H project vicinity. One white-tailed kite observed on August 25, 2015, was recorded perched on a shrub in grid square W7 and may have been north of Runway 7, where such perch sites occur just north of the location of proposed Taxiway H project impacts. Therefore, only one white-tailed kite observed during the year-long survey effort was potentially in the immediate Taxiway H project vicinity. It should be noted that kites are easily detected when present, and that the lack of observations during intensive point count surveys at least demonstrates they are not using this portion of the Taxiway H project site frequently.

The proposed Taxiway H location contains low quality habitat for the white-tailed kite and its prey. In addition to infrequent white-tailed kite observations, suitable prey were in extremely low abundance. Kite prey at the proposed Taxiway H project site, as well as other non-prey rodent species (i.e., Botta’s pocket gopher) are likely to remain at low levels consistent with implementation of the wildlife hazard management plan in airport safety areas. The WHA recorded an extremely low abundance of suitable prey items for white-tailed kites during small mammal trapping in the annual brome grassland along the proposed Taxiway H extension (Dudek et al. 2016). During two trapping nights in April 2015 and two nights in November 2015, only one suitable prey item (a single western harvest mouse, *Reithrodontomys megalotis*) was captured in Grid 4 within this area (*Figure 1*; Dudek et al. 2016). In addition to evidence that small mammal populations, specifically white-tailed kite prey, are extremely low in the Taxiway H project site, the Santa Barbara Airport’s WHMP (City of Santa Barbara 2017) requires that the airport monitor rodent populations on the airfield and implement a periodic control program. The

airport is obligated to adhere to its WHMP as part of requirements to maintain its certification as a Part 139 airport. Although white-tailed kites are known to forage in the vicinity, the maintained brome grasslands along the proposed Taxiway H extension only provide low quality foraging habitat for this species, which may have contributed to the white-tailed kite's absence or near absence during point count surveys (kite abundance is ultimately regulated by prey abundance; Dunk 1995, Waian and Stendall 1970).

White-tailed kites may forage over large distances outside the nesting season. However, it has been observed that they seldom forage farther than a 0.5-mile radius from the nest site (Hawbecker 1942; also see territory sizes in Dunk 1995). If enough food is present, an area of about 20 acres¹ of mouse pasture is large enough to support a pair of nesting kites and their young (Dixon et al. 1957). Despite extensive efforts since the 1990s to document nesting kites in the Goleta area, no nests have been documented less than approximately 0.4 miles from the proposed Taxiway H extension. Nests have been observed in several areas between 0.4 and 0.7 miles from the Taxiway H project site since 1990s, including the vicinity of Basins I and J in Goleta Slough, the vicinity of Harder Stadium at the University of California, Santa Barbara (UCSB), and at West Storke Family Housing, UCSB (*Figure 1*). Nest locations have varied from year to year, so several locations are associated with each area. In only one or two years (1997 and 2012) have active nests been detected in more than one of these areas. However, in most years only one kite territory is present in these areas.

The nearest nest to the Taxiway H project site for each area is as follows: Basins I and J, 0.49 miles; Harder Stadium, 0.40 miles; and West Storke Campus, 0.58 miles. Each of these distances is to the nearest point of the Taxiway H project site. For example, while the nearest nest at Basins I and J is approximately 0.49 miles from the nearest point of the site, nearly all of the Taxiway H project site is 0.5 miles or more from this nest location. Therefore, while a portion of the Taxiway H project site may partly be within the foraging range of nesting white-tailed kites in some years, it is generally out of the typical foraging range for nesting individuals in the area.

In conclusion, although brome grasslands like those present on the Taxiway H project site are considered to provide suitable foraging for kites in their unaltered or grazed conditions, the lack of small mammals, especially kite prey, encountered during trapping efforts, the absence of kites during a year-long survey (including their complete absence from the airport prior to mid-August), and the distance of the Taxiway H project site from known nest locations suggest that the area provides only low quality foraging habitat for nesting white-tailed kites. In addition to

¹ Approximately 0.1-mile radial distance from a nest, assuming a 20-acre territory is circular and nest is in the center.

the habitat quality and distance to nesting kites, relative to the amount of available habitat in the region, the impact to 6.1 acres of annual brome grassland would be relatively small, as discussed below. These factors indicate that Taxiway H project impacts to kite nesting would be less than significant.

CUMULATIVE IMPACT ANALYSIS

As noted above, the future construction of Taxiway H and glide slope antenna would result in a permanent loss of 6.1 acres of potential kite foraging habitat. Relative to the amount of available habitat in the region, this impact is small. Here we provide a cumulative impact analysis to examine the extent of kite foraging habitat that has or is anticipated to be impacted in the region.

Under California Environmental Quality Act (CEQA), an EIR must discuss cumulative impacts of a project if the project's incremental effects are significant when viewed in connection with the effects of past projects, current projects, and probable future projects (14 CCR 15130(a) and 15065(a)(3)). When this occurs, the project's impacts should be identified as "cumulatively considerable."

The cumulative impact analysis provided below utilizes a "list-of-projects" approach, which focuses on regional impacts to suitable foraging habitat for white-tailed kites within a defined "Cumulative Study Area" (*Figure 2*). This study area encompasses the area potentially used by white-tailed kites in the Goleta Valley. It includes the City of Goleta (City), UCSB, and areas under County of Santa Barbara jurisdiction extending from Dos Pueblos Canyon east to the City of Santa Barbara western boundary. Projects considered include those within the Cumulative Study Area and provided in cumulative projects lists by the City and County. Since the City and County do not maintain GIS boundary records for projects in their jurisdiction, all environmental documents pertaining to projects within the Cumulative Study Area were reviewed. Projects within the Cumulative Study Area with potential kite foraging habitat that has been or is anticipated to be impacted is provided in *Table 1* and shown on *Figure 2*.

Table 1 provides a broad overview of the amount of kite foraging habitat that has been or may be impacted in the Cumulative Study Area. Since environmental documents are not required to report on impacts to non-sensitive vegetation communities (e.g., non-native grasslands), impact acres were estimated utilizing any information available for a given project (e.g., project descriptions, figures, impact discussions, etc.), including local knowledge of the area. Although the primary habitat considered in project reviews included grassland habitat, open scrub or agriculture is often considered suitable foraging habitat. However, it is important to note that (1) kites have not been observed to use agriculture frequently in the Cumulative Study Area, and (2) many scrub habitats listed in *Table 1* may be too dense for this species and potentially not

suitable. Therefore, the acres presented below may overestimate the overall cumulative impacts to foraging habitat in the Cumulative Study Area, which would suggest that the actual impacts to foraging habitat may be less than presented below. Also note that vegetation shown in *Figure 2* is provided only for context of impacts in *Table 1*. As project boundaries were not available for all projects in this analysis, impact calculations in the current analysis are based on the description of impacts provided in environmental analysis for the various projects.

Overall, an estimated total of approximately 498 acres of suitable kite foraging habitat has been or is anticipated to be impacted in the region by past, present, or probable future projects (*Table 1*). Within the Cumulative Study Area annual grasses and forbs alone account for over 4,500 acres (*Figure 2*), which suggest that suitable foraging habitat is still plentiful in the region. Taxiway H project permanent impacts to 6.1 acres of potential foraging habitat for white-tailed kites would not contribute substantially to the overall impacts to approximately 498 acres from past, current, and probable future projects. In addition, as described above, the potential foraging habitat that would be removed by a future Taxiway H project is low quality and not essential for nesting white-tailed kites, based on the lack of observations in the area, the apparent low numbers of suitable prey, and the distance of this area from known kite nesting locations. Therefore, when considered with all projects in the region, the construction of Taxiway H (permanent disturbance area of 6.1 acres of marginal foraging habitat for kites) would not significantly contribute to the cumulative impacts to kite foraging habitat.

Table 1
Projects within Cumulative Study Area with Potential Foraging Habitat

Project No.	Project (Case No.)	APN	Project Status ¹	Select Habitat Present ²	Acres Foraging Habitat Impacted
1	Village at Los Carneros (10-043-DP- et al.)	073-330-024, -026, -027, -028, -029	Under construction	NNG, CBS	35.75
2	Rincon Palms Revised Hotel/Conference Center (11-083-DP RV)	073-140-004	Under construction	NNG	3.06
3	Citrus Village (04-226-TM, -DP)	077-490-043	Under construction	RG	0.94
4	Marriott Residence Inn (09-075-TPM, -DP and 09-079-DP AM)	073-050-020	Under construction	NNG	1.9
5	Islamic Society of SB (03-051-RZ, -DP, -CUP)	077-160-035	Approved (Not Constructed)	NNG (RG)	0.49
6	Cortona Apartments (09-140-DP)	073-140-016	Approved (Not Constructed)	NNG	6.17
7	UCSB Long Range Development Plan (SCH No. 2007051128)	Multiple	Under Construction	NG, NNG, RD	37.8 ³
8	Shelby Residential Project (05-154-GPA, -RZ, -VTM)	077-530-019	Pending	NNG	0.42
9	Kenwood Village (08-205-GPA, -RZ, -VTM)	077-130-066, -019; 077 -141 -049	Pending	NNG	9.45
10	Heritage Ridge (14-049-, -VTM, -DR, -CUP)	073-060-031 through -043	Pending	CBS, QBS, UM, <i>Bromus-Brachypodium distachyon</i> Herbaceous Semi-Natural Alliance	14.24
11	Hollister Village Apartments	073-030-026, -	Pending	NNG	21.7

Table 1
Projects within Cumulative Study Area with Potential Foraging Habitat

Project No.	Project (Case No.)	APN	Project Status ¹	Select Habitat Present ²	Acres Foraging Habitat Impacted
	(16-029-GPA-RZ-LLA DPAM)	027, -028, -033			
12	Blickley Lot Split (14NGD-00000-00010)	059-440-012, 059-440-014	County Archived	NG, NNG/OW	3.75
13	Cavaletto Tree Farming Housing Project (01GPA-00000-00009, 01RZN-00000-00015, 08DVP-00000-00012, 09TRM-00000-00001, 09RDN-00000-00001)	069-100-006, -051, -054, -057.	County Archived	NNG	22.4
14	Paradiso del Mare Ocean and Inland Estates (06CDH-00000-00038, 06CDH-00000-00039, 07CUP-00000-00065, 09CDP-00000-00045, 10CUP-00000-00039 and 10CDP-00000-00094)	079-200-004 and 079-200-008	County Archived	ABG, CBS, CSS, MF, HGS	26.5
15	Park Hills Estates (10TRM-00000-00001)	059-290-041	County Archived	AG, PNGG, CBS	13.71
16	SB Land & Ranching Co. Fencing Project (13NGD-00000-00019/12CDH-00000-00039)	079-160-046, -045, -021, -038, 079-170-031 through -045, 079- 180-031	County Archived	AG, NG, PNGG	22.4
17	Santa Barbara Ranch	Multiple	County Archived	CS, NG, NNG	138.12

Table 1
Projects within Cumulative Study Area with Potential Foraging Habitat

Project No.	Project (Case No.)	APN	Project Status ¹	Select Habitat Present ²	Acres Foraging Habitat Impacted
	Project (MOU Project) (04EIR-00000-00014)				
18	So Cal Gas Storage Enhancement Project (10EIR-00000-00001)	071-210-001	County Archived	AG	1.38
19	Ballantyne Single Family Residence (05LUP-00000-00611, 06APL-00000-00045, and 08CDP-00000-00006)	079-090-036	Completed	NGG, small CBS	0.37
20	More Mesa Biological Resource Study (N/A)	065-320-001, -002, -007, -008, -009, and -010	Completed	AG, CB, MB, PNGG, CBS, SB, CLO, Ruderal	40
21	St. Athanasius Orthodox Church (01CUP-00000-00152)	071-140-072	Completed	CF	5.35
22	Cabrillo Business Park (37-SB-RZ, -TM, -DP, -OA, -RN.)	073-450-005	Completed	NNG, wetlands	92.25

¹ County Archived includes those archived projects (status unknown)

² Vegetation Types: AG = annual grasslands, ABG = annual brome grasslands, CS = coastal scrub, CB = California brome, CBS = coyote brush scrub, CF = cultivated fields, CLOW = coast live oak, CSS = California sagebrush scrub, DIST = disturbed, HGS = Harding grass swards, MB = meadow barley, MF = mustard fields, NG = native grasslands, NNG = non-native grassland, PNGG = purple needle grass grassland, QBS = quail brush scrub, RD = ruderal, RG = ruderal grasses, UM = upland mustard, OW = oak woodlands, SB = seaciff buckwheat

³ Includes project acres for North Campus Faculty Housing (23 acres) and Sierra Madre Family Housing (14.8 acres)(UCSB 2014, UCSB 2008). All project impact acres included in total (some of which may include small amounts of habitat not suitable for foraging).

REFERENCES

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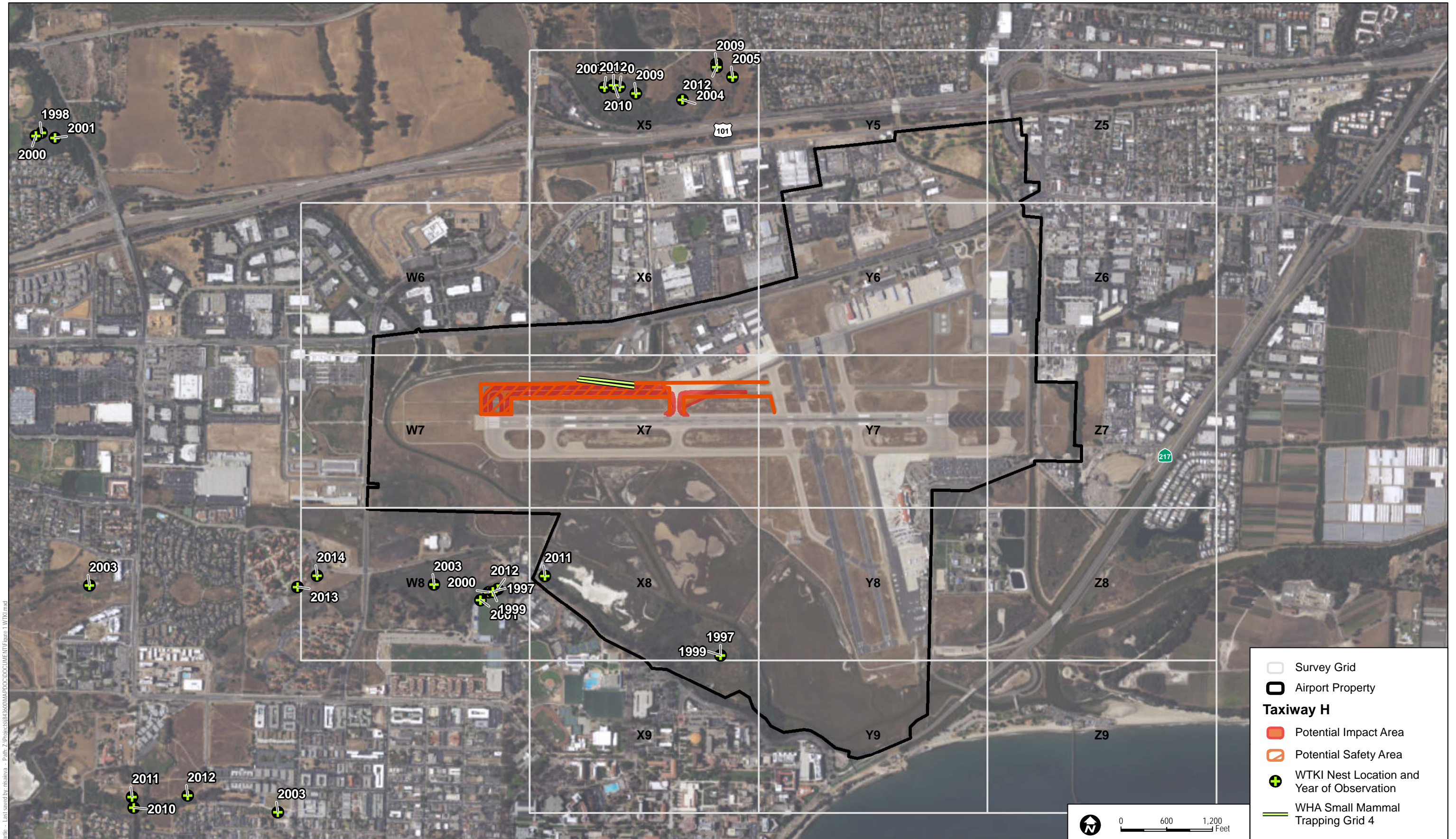
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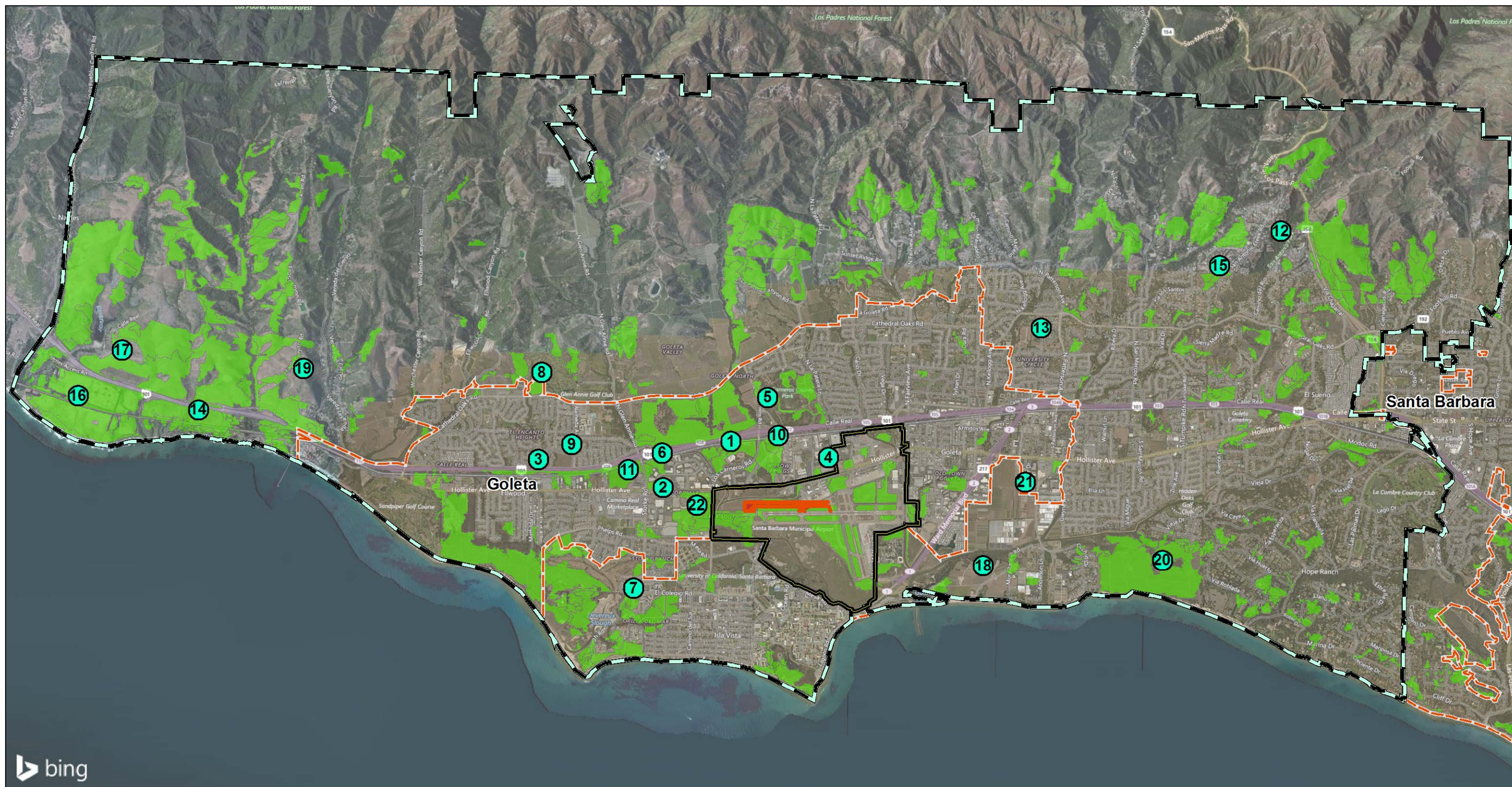
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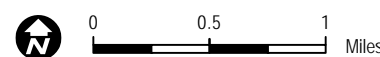


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- Project Number and Location
- Airport Property Line
- Taxiway H
- Potential Impact Area
- Potential Safety Area
- Cumulative Study Area
- City Boundary
- USGS eVegetation
- HG - Annual Grasses and Forbs



TECHNICAL MEMORANDUM

To: Andrew Bermond, City of Santa Barbara Airport Department
Judi Krauss, Coffman Associates

From: John H. Davis IV, Dudek

Subject: Santa Barbara Airport Master Plan Program Environmental Impact Report
Proposed Mitigation Measures for Development of a Programmatic Mitigation Plan

Date: June 5, 2017

Attachments: Exhibit 2A – Draft Proposed Taxiway H Extension (Coffman Associates)
Figure 1 – Potential On-Site Mitigation Areas (Dudek)

This technical memorandum presents a framework for a Programmatic Mitigation Plan to mitigate potential wetland and/or wetland and riparian buffer impacts associated with the proposed Airfield development identified in the Santa Barbara Airport (Airport) Master Plan Program Environmental Impact Report (Master Plan Program EIR). The proposed impacts in wetland and upland areas are associated with the recommended Taxiway H improvements to Runway 7-25, which involve the extension of Taxiway H to the Runway 7 threshold. This action would provide a full-length parallel taxiway and the construction of two new taxiway connectors. The area of disturbance would be the Taxiway H pavement as well as its shoulders and grading within its Taxiway Object Free Area. It also includes an area of disturbance for relocation of the glideslope antenna. Based on a Taxiway H exhibit prepared by Coffman Associates (*see attachments*), an approximate 12.4-acre area (not including the paved areas to be removed) would be disturbed with approximately five acres of net increase in impervious surfaces.

The majority of the other proposed Master Plan Program EIR improvements would be located in developed areas of the Airport, and airfield safety improvements (taxiway extension/improvements) would be located in level areas, thereby limiting grading, substantial increases of new impervious surfaces, and disturbance to natural drainage features. New or improved drainage systems necessary to convey runoff from improvement areas, including any drainage discharge or disposal devices would be designed to avoid or minimize impacts to the site's waterways/drainages.

Implementation of the proposed airfield development associated with Taxiway H would result in permanent impacts to potential jurisdictional wetland habitat and wetland and riparian setback/buffers within the Goleta Slough. Impacts to jurisdictional wetlands and/or wetland

buffers requires compensatory mitigation, and in this case, preferably on-site restoration of previously disturbed habitat to fulfill compensatory mitigation requirements. In addition, the design of compensatory mitigation must be consistent with the Airport's on-going wildlife maintenance activities and those required by the Wildlife Hazard Management Plan (WHMP; Airport 2017). The availability of potential mitigation land within the Goleta Slough and the existing connectivity between the potential mitigation land and intact wetland habitat within the Goleta Slough provide a rationale for the selecting such areas. Potential Mitigation Areas 1-7 described in **BIO-1** are all located within the Goleta Slough and may be used as compensatory mitigation sites, pending agency approvals. The Airport has a record of previous wetland restoration projects on Airport property and within the Goleta Slough which provides evidence of the likelihood of successful restoration project implementation and establishment of self-sustaining native habitat in the long-term.

Preparation of a Programmatic Mitigation Plan would set the framework for mitigating wetland and/or wetland buffer impacts related to state and federal jurisdictional wetlands and wetland buffers and riparian habitat to a less than significant level under the Master Plan Program EIR. Project-specific Habitat Mitigation and Monitoring Plan(s) (HMMP) as part of future project approvals would be required under the Programmatic Mitigation Plan to provide detailed determinations of mitigation design and implementation criteria following coordination with the appropriate federal, state, and local agencies.

BIO-1 Programmatic Mitigation Plan. The Programmatic Mitigation Plan is intended to provide a framework for future project-specific Habitat Mitigation and Monitoring Plan(s) (HMMP) to provide compensatory mitigation for indirect and direct impacts to jurisdictional wetland habitat and established wetland and riparian setback/buffers from these protected habitats under the Airport Master Plan Program EIR. The HMMP shall also address impacts to upland (i.e., grassland and shrubland) habitats. The Programmatic Mitigation Plan should be consistent with all Santa Barbara Airport (Airport) operation and management policies, including ongoing wildlife management activities and requirements of the Wildlife Hazard Management Plan (Airport 2017). In addition, it shall also consider the California Coastal Act and Airport Local Coastal Plan, Goleta Slough Area Sea Level Rise and Management Plan (Goleta Slough Management Plan; GSMC 2015), California Fish and Game Code, Clean Water Act, and other plans and policies that regulate wetland and upland habitats. Under direction of the Programmatic Mitigation Plan, the Taxiway H Airfield Safety Project will be required to submit for regulatory agency (USACE, CDFW, CCC, and City, as appropriate) approval a HMMP for impacts to

jurisdictional wetland and upland areas. Components of the Programmatic Mitigation Plan shall include, at minimum, the following requirements and information:

1. Mitigation for wetland habitat and and/or wetland and/or riparian buffers shall be a minimum of 4:1 (restoration to impact) ratio and upland habitat (i.e., grassland and shrubland) shall be replaced at a 3:1 ratio in a form and location acceptable to the permitting regulatory agencies. Regulatory agencies may require a higher ratio depending on the habitat value and function that is proposed to be impacted.
2. Habitat mitigation should occur on Airport property (on-site) in lands historically part of the Goleta Slough wetland complex and on wetland and upland areas currently mapped as disturbed or dominated by areas of non-native invasive plant species which would be reasonably expected to establish sustainable wetland, transitional, and upland habitat(s) to the extent feasible.
3. Any mitigation within the Goleta Slough Ecological Reserve shall be authorized by the California Department of Fish and Wildlife and California Coastal Commission under a Local Coastal Plan amendment.
4. The Airport shall solicit comments from the Goleta Slough Management Committee, a technical advisory committee for the Goleta Slough Ecological Reserve, on the Programmatic Mitigation Plan as well as on all future project-specific HMMP(s).
5. Focused biological surveys shall be conducted on the potential mitigation area(s) within one year of approval of all future project-specific HMMP(s). Depending on the amount of impacts to wetland and upland habitats, more than one mitigation area may require biological surveys. At minimum, the biological surveys shall consist of vegetation community mapping, floristic inventory, a wetland delineation and jurisdictional determination, and focused Belding's savannah sparrow surveys and raptor surveys, if suitable habitat exists for these species in the selected mitigation area(s). Additionally, each mitigation area shall be analyzed for physical habitat conditions including hydrology, salinity, and soils by the appropriate technical specialists.
6. All sensitive biological resources shall be avoided in the design and during implementation and maintenance of future mitigation. Sensitive biological resources include, but are not limited to occurrences of nesting Belding's savannah sparrow, southern tarplant, coulter's goldfield, meadow barley, creeping

ryegrass, and other native grassland and native wetland habitat (Special-Status Species and Wetland Inventories, Dudek 2012 a and b).

7. The Airport should comply with the conditions and recommendations of existing guiding documents: Local Coastal Plan amendments, Goleta Slough Management Plan (GSMC 2015), and Wildlife Hazard Management Plan (Airport 2017).
8. The Airport shall assess the potential for an increase in wildlife hazards to airfield operations as described in Wildlife Hazard Assessment (WHA; Dudek 2016) and the Wildlife Hazard Management Plan (WHMP; Airport 2017) in all future project-specific HMMP's with respect to the following criteria:
 - a. Increasing the attractiveness of the Airport to hazard species or groups identified in the WHA/WHMP, as well as other species that may provide a hazard to aircraft. These include, but are not limited to, raptors, turkey vultures, gulls, waterfowl, pigeons and doves, flocks of blackbirds and European starlings, and coyotes.
 - b. Increasing the attractiveness of the Airport to any species covered under a valid Airport's depredation permit.
 - c. Providing attractants to wildlife within 250 feet of a runway centerline.
 - d. Attracting threatened or endangered species, California fully protected species, or any species for which the Airport's ability to conduct wildlife hazard management activities (such as visual and acoustic hazing) may be limited.
 - e. Resulting in an increase in rodent populations on the Airport.
 - f. Resulting in any inundation of the airfield.
 - g. Resulting in an increase in trees or shrubs in the airfield vicinity.
9. Restoration strategies shall be proposed that balance the criteria identified in **BIO-1.1** through **BIO-1.8**, as well as agency requirements for wetland and upland restoration. The Mitigation Areas 1 through 7 and potential restoration strategies have been considered in preparation of the Programmatic Mitigation Plan and shall continually be considered in project-specific HMMP(s). A summary of the

mitigation areas, acreage available for mitigation, existing habitats, and potential restored and/or enhanced habitats are presented in *Table 1* below.

Table 1. Summary of Potential Mitigation Areas and Existing and Restored Vegetation Communities

Mitigation Area	Mitigation Acreage Available	Existing Habitats ^{1, 2, 3}	Potential Restored or Enhanced Habitats
1	7.99	<ul style="list-style-type: none"> Emergent Wetland Herbaceous Wetland Grassland Wetland Annual Grassland Shrubland Invasive (Non-native) 	<ul style="list-style-type: none"> Emergent Wetland Transitional Wetland Grassland Wetland Native Grassland
2	3.48	<ul style="list-style-type: none"> Annual Grassland 	<ul style="list-style-type: none"> Transitional Wetlands Native Grassland
3	2.12	<ul style="list-style-type: none"> Emergent Wetland Grassland Wetland Annual Grassland 	<ul style="list-style-type: none"> Emergent Wetland Transitional Wetland Grassland Wetland Native Grassland
4	0.94	<ul style="list-style-type: none"> Emergent Wetland Salt and Mudflats Native Shrubland Non-native Invasive 	<ul style="list-style-type: none"> Transitional Wetland Native Shrubland
5	4.58	<ul style="list-style-type: none"> Emergent Wetland Salt and Mudflats Native Shrubland Non-native Invasive 	<ul style="list-style-type: none"> Emergent Wetland Transitional Wetland Grassland Wetland Native Shrubland
6	8.15	<ul style="list-style-type: none"> Emergent Wetland Native Perennial Grassland Non-Native Annual Grassland 	<ul style="list-style-type: none"> Emergent Wetland Grassland Wetland Transitional Wetland Native Grassland
7	11.26	<ul style="list-style-type: none"> Emergent Wetland Native Perennial Grassland Non-Native Annual Grassland 	<ul style="list-style-type: none"> Emergent Wetland Grassland Wetland Transitional Wetland Native Grassland
Total Acreage	38.52		

¹ Dudek 2012. Wetland Inventory for the Santa Barbara Master Plan Update

² Dudek 2012. Wetland Inventory for the Santa Barbara Master Plan Update

³ California Coastal Act one-criterion definition of wetland

Mitigation Area 1

Mitigation Area 1 (7.99 acres) is located between Hollister Avenue and the Growing Solution Nursery at Santa Barbara Airport (*see attachments*) within the California Department of Fish and Game's (now Fish and Wildlife) Management Plan Area (Goleta Slough Management Committee (GSMC) 1997). The nearest designated subarea basins per the Goleta Slough Management Plan are semi-tidal basins E/F located 0.30 mile south of Mitigation Area 1 just across from the runways (GSMC 2015). An Airport fence around the nursery and upland areas partially forms the southern boundary of the mitigation area with Robert Troup Road continuing further east of the nursery along the southeast boundary. Hollister Avenue is directly adjacent to northern boundary of the Mitigation Area. Across Hollister Avenue, a wetland area and remnant part of Goleta Slough, the Los Carneros Wetland, is situated between nearby residences and businesses. A storm culvert connects the wetland to Mitigation Area 1. Further south is Los Carneros Creek, which is separated from the mitigation area by an Airport access road positioned on a levee above the creek channel. The southern tarplant (*Centromadia parryi*) is located in southern portion of this mitigation area and further south along Los Carneros Creek. Southern tarplant will be avoided.

Mitigation Area 1 is currently a maintained field comprised of seasonally mowed annual brome grassland. The annual grassland is located primarily on slightly elevated topography, which surrounds existing wetland habitat. In fact, this area is known to flood during heavy storm events. Historically, Mitigation Area 1 was believed to consist of palustrine and estuarine habitats as part of the Goleta Slough (GSMC 1997). Based on current conditions (vegetation and flooding) and historical wetland habitats, this site is ideal for the expansion of transitional and wetland habitats. To accomplish the conversion from upland annual grassland to wetland habitat, the site would be need to be mildly re-contoured or "groomed," as appropriate, to allow for a variety of short wetland vegetation (grasses, sedges, alkali heath, pickleweed, etc.) to flourish in a seasonally waterlogged soil matrix similar to the area west of Mitigation Area 1 (saltgrass, curly dock, pickleweed, meadow barley, etc.). The re-contouring could also remove a portion of the non-native and invasive plants species seed stock currently occupying the upland areas. The desired plant composition of the wetlands installed in this location, if selected, shall be consistent the Goleta Slough Management Plan (GSMC 2015) and compliant with Airport safety regulations. Mitigation Area 1 is suitable for various wetland types or strategies to re-introduce wetland habitat back to this

area. To balance restoration goals with safety issues, two restoration strategies are considered along with a brief assessment of potential wildlife hazards that may be attracted to the area once constructed. Dudek et al., (2016) recently completed a Wildlife Hazard Assessment for the Airport (Dudek 2016) and the SBA certified their Wildlife Hazard Management Plan in February 2017 (Airport 2017).

Restoration Strategy 1: Transitional Wetland (mesic grasslands – saltgrass, meadow barley, FAC species)

Grass dominated wetlands are not expected to greatly increase the wildlife hazard levels for aircraft utilizing the proposed Taxiway H or existing runways. The water-dependent bird species, a higher level of concern, that are attracted to ponded areas would generally not be drawn to wetlands dominated by perennial grass species (although small numbers may establish nests in grasslands). An exception might be Canada goose (*Anser Canadensis*), a large species of waterfowl that often travels in flocks and gathers and forages in grassy areas during the day time. However, all areas proposed already provide open grassy areas that could potentially attract this species, so this type of wetland restoration may not increase the attraction of the Canada goose to the Airport or near active taxiways or runways.

Additionally, if unmanaged, it is possible that grassland wetland habitat would contribute to an increase in small mammal populations, which could attract coyotes (*Canis latrans*) and even raptors. Attraction of coyotes in Wetland Mitigation Area 1 from other nearby habitat patches via the airfield could present an increased wildlife hazard. Potential attraction of raptors could also create an increased wildlife hazard if prey species became common in the restored grassland wetland habitat. Raptors often move about freely between suitable hunting fields depending on prey abundance and availability. In general, an increase in raptor activity would pose more of a hazard to air traffic compared to coyotes, regardless of proximity to the airfield. If future HMMP's are consistent with the Wildlife Hazard Management Plan (Airport 2017), the opportunities for coyotes and raptors species to successfully capture prey would be minimal; therefore, use by these species would likely be infrequent in the restored habitat unless management alternatives are employed for parts of the restored habitat that benefit the coyote, raptors, and their prey.

Although the use of saltgrass or meadow barley as key component(s) of wetland restoration in Mitigation Area 1 has potential to attract wildlife species hazardous

to aircraft, overall this type of wetland has a relatively low wildlife hazard associated with it in comparison to other wetland habitats in the area that support extensive ponding, perennial surface water, or tidal circulation.

Restoration Strategy 2: Herbaceous or Emergent Wetland

Emergent vegetation, depending on species, typically requires longer duration ponding, inundation, and/or water-logged soils. To re-introduce hydrology into Mitigation Area 1 increases the possibility of sustaining standing water for an extended period of time, which may attract several dabbling duck species. In coastal Santa Barbara County, this includes mallard (*Anas platyrhynchos*), a species that sometimes moves between wet areas with relative frequency and during the breeding season engages in long chases involving several birds, and species such as northern shoveler (*Anas clypeata*), which do not breed in the vicinity, but are highly prone to flushing because of human activity. Attraction of great blue heron (*Ardea herodias*) and great egret (*Ardea alba*), species large enough that one individual could pose a threat to an aircraft, could also result in an increased wildlife hazard. Along with Canada goose, these species are some of the greatest threats to aircraft at the Airport.

If Mitigation Area 1 is re-contoured or “groomed” to accept a greater quantity and duration of standing water to support herbaceous or emergent wetland, the potential of attracting dabbling ducks, herons, and egrets would significantly increase during wet periods. Attraction of these species during winter and early spring could equate to an increase in the wildlife hazard level. However, this increase would be low compared to that associated with areas closer to the airfield (Mitigation Area 4 and 5) and is the preferred restoration strategy if this type of wetland creation is required (i.e., 3-criteria emergent wetlands).

Mitigation Area 2

Mitigation Area 2 (3.48 acres) is located along the western portion of the Airport between Tecolotito Creek and Los Carneros Road (*see attachments*) within Subarea R of the California Department of Fish and Wildlife Management Plan Area (GSMC 1997). A slightly elevated shrub covered area forms the southern boundary. This “mound” is oval shaped and approximately half of it (as viewed from above) is positioned on Airport property. The other half is part of the Ecological Preserve on CDFW property also known as Western Goleta Slough.

The nearest Goleta Slough Management Plan Subarea Basin is 0.18 mile southeast of non-tidal basin R-2 (GSMC 1997).

Mitigation Area 2 currently contains a field of non-native annual grasslands comprised primarily of Italian rye grass and annual brome grass. Native vegetation abuts the southern extent of the area including pickleweed and alkali heath, both plant species considered hydrophytic (USACE 2014). The rare Coulter's goldfield (*Lasthenia glabrata* ssp. *coulteri*) is located in southwestern portion of this mitigation area and will be avoided. Historically, Mitigation Area 2 was believed to provide upland habitat within the Goleta Slough with a small area of palustrine located in the southwestern area (GSMC 1997). A greater coverage of palustrine habitat was located north of the area, historically, but is now dominated by invasive grasses and forbs (Harding grass and black mustard) and native shrub, coyote brush, on the elevated area near Los Carneros Road. Mitigation Area 2 is separated from Tecolotito Creek by an Airport road that follows the creek south and then as it bends west towards Los Carneros Road at the end of runway. Based on current conditions (vegetation) and historical wetland habitats, Mitigation Area 2 is ideal for creation of wetlands (the area north of the Airport road – not delineated – also could be considered for restoration). As with Mitigation Area 1, the site would be need to be re-contoured (or “groomed”) and planted with a variety of short wetland vegetation. The desired plant composition of the wetlands installed in this location, if selected, shall be consistent the Goleta Slough Management Plan and compliant with Airport safety regulations. Similar to Mitigation Area 1, Mitigation 2 is suitable for various wetland types and two wetland types are considered as in Mitigation Area 1 with consideration of the same restoration goals and safety concerns.

If restoration strategy 1 is implemented at Mitigation Area 2, the restoration goal may only be achieved if 1- or 2-criteria wetland habitat is desired or a transitional wetland to upland habitat. The wildlife hazard assessment is expected to be similar to Mitigation Area 1; however, the hazard level would be potentially greater, and as raptors foraging in this area could enter airspace directly in the path of aircraft. Although this area, unlike Mitigation Area 1, is inside the Airport fence, it is separated from the airfield by Tecolotito Creek, which could limit travel of coyotes to and from the site and taxiways and runways where they pose safety concerns.

Implementation of restoration strategy 2 at Mitigation Area 2, in which ponding would occur seasonally and possibly over an extended period of time depending

on final design, would potentially result in an increase in a hazard level higher than what would be associated with this type of mitigation at several other sites (Mitigation Areas 1 and 3).

Mitigation Area 3

Mitigation Area 3 (2.12 acres) is located in the southwest portion of the Airport property along its southern boundary which it shares with the Ecological Reserve on CDFW property (*see attachments*). Mitigation Area 3 is also within the Subarea R of the CDFW Management Plan Area (GSMC 1997) and is approximately 0.25 mile southeast of Mitigation Area 2. Mitigation Area 3 is also within Study Area Basin R-2 designated as “Non-Tidal Basins that Impound Water.” The slightly elevated shrub covered area is about 150 feet from the western boundary of the area separated by an Airport road that is no longer in use (historically part of the military installation). A channelized Tecolotito forms the northern boundary of the area. Mitigation Area 3 is over 400 feet from a taxiway safety area and even further from a runway and its safety area.

Mitigation Area 3 currently contains a field of non-native annual grasslands dominated by Italian rye grasses. Small patches of natural vegetation are found within the area including pickleweed, meadow barley, and alkali heath, all hydrophytic plants (USACE 2014). Historically, Mitigation Area 3 was believed to be palustrine-upland hybrid within the Goleta Slough (GSMC 1997).

Based on current conditions (vegetation) and historical wetland habitats, Mitigation Area 3 is ideal for creation of wetlands (the area north of the Airport road – not delineated – also should be considered for restoration). As with Mitigation Area 1, the site would need to be re-contoured (or “groomed”) and planted with a variety of short wetland vegetation. The desired plant composition of the wetlands installed in this location, if selected, shall be consistent with the Goleta Slough Management Plan and compliant with Airport safety regulations. Mitigation Area 3 is suitable ecologically for the two restoration strategies.

If restoration strategy 1 is implemented at Mitigation Area 3, the restoration goal may only be achieved if 1- or 2-criteria wetland habitat is desired. The wildlife hazard assessment is expected to be similar to Mitigation Area 1 and lower than Mitigation Area 2, as raptors foraging in this area would not be in the direct path of aircraft. The Airport fence and location of Tecolotito Creek also limits the attractiveness of the coyotes and the possibility of them moving across runways.

Implementation of restoration strategy 2 at Mitigation Area 3, in which ponding would occur seasonally and possibly over an extended period of time depending on final design, would potentially result in an increase in a hazard level higher than what would be associated with this type of mitigation at the other mitigation areas, specifically Mitigation Areas 1 and 2.

Mitigation Areas 4 and 5

Mitigation Areas 4 (0.94 acres) and 5 (4.58 acres) are located south of the runway in the south-central portion of the Airport property close to U.C. Santa Barbara (*Figure 1*). Mitigation Area 4 is within Basin L and Mitigation Area 5 is within Basin M per the CDFG's Management Plan or Study Area Basin (GSMC 1997). Mitigation Areas 4 and 5 currently contain pickleweed with salt and mud flats in the lower areas and shrubs and non-native invasive herbaceous vegetation along the berms. Historically, Mitigation Areas 4 and 5 were believed to be estuarine habitat of the Goleta Slough (GSMC 1997).

Based on current conditions (vegetation) and historical wetland habitats, Mitigation Areas 4 and 5 are ideal for creation or enhancement of additional wetland and upland habitats. The desired plant composition of the wetlands installed in this location, if selected, shall be consistent the Goleta Slough Management Plan and compliant with Airport safety regulations.

Implementation of restoration strategy 2 at Mitigation Areas 4 and 5, in which ponding would occur seasonally and possibly over an extended period of time depending on final design, could result in a significant increase in hazard level beyond Mitigation Areas 1, 2, or 3.

Mitigation Areas 6 and 7

Mitigation Areas 6 (8.15 acres) and 7 (11.26 acres) are located directly south of taxiway safety area in the central to south-central portion of the Airport property south of Hollister Avenue. The taxiway and runway safety area are adjacent to Mitigation Area 7 to the east. An Airport road connecting a weather station separate Mitigation Area 6 (to the west) from 7 (to the east) (*Figure 1*). Neither mitigation areas are within a Subarea of the CDFW Management Plan or Study Area Basin per the Goleta Slough Management Plan (GSMC 1997; City of Santa Barbara Local Coastal Plan 1984). Mitigation Area 7 currently contains a field of primarily non-native annual brome grasses with large patches of meadow barley

and small patches of pickle weed and salt grass, all hydrophytic plants (USACE 2014). Historically, Mitigation Areas 6 and 7 were believed to be estuarine habitat of the Goleta Slough (GSMC 1997).

Based on current conditions (vegetation) and historical wetland habitats, Mitigation Area 6 and 7 are ideal for creation of upland (i.e., grassland), transitional, and wetland habitats. As with other mitigation areas, the sites would be need to be re-contoured or “groomed” and planted with a the appropriate plant palette. The desired plant composition of the upland, transitional, wetland, or combination of habitat(s) installed in this location, if selected, shall be consistent the Goleta Slough Management Plan and compliant with Airport safety regulations.

If restoration strategy 1 is implemented at Mitigation Area 6 or 7 the restoration goal may only be achieved if 1- or 2-criteria wetland habitat is desired. The wildlife hazard assessment is greatest for these two areas since no barriers separating coyotes from the airfield, and birds and wildlife attracted to these locations would be adjacent to the airfield. These are probably the least desirable locations for this type of restoration, although the level of hazard associated with this type of restoration, in general, is considered low.

Implementation of restoration strategy 2 at Mitigation Areas 6 and 7, in which ponding would occur seasonally and possibly over an extended period of time depending on final design, could result in a significant increase in hazard level beyond the other Mitigation Areas.

10. As necessary due to sea level rise or other changes in future conditions within the Slough, adaptive restoration measures consistent with the recommendations of the Goleta Slough Management Plan shall be implemented.
11. The genetic origin of all native wetland and riparian propagules shall be from the Goleta Slough and for all native upland plants should be from the Goleta Valley. All wetland plants shall have a facultative, facultative wetland, or obligate wetland indicator status per the U.S. Army Corps of Engineers National List of Plant Species that Occur in Wetlands.
12. Restoration shall be phased to ensure that all restoration plantings are in place with sufficient irrigation prior to final inspection. Irrigation shall be reduced or eliminated after Year 2 depending on environmental conditions (i.e., drought may

prolong irrigation). The wetland restoration shall be without supplemental irrigation for at least two years prior to final approvals. This could result in a maintenance and monitoring period greater than five (5) years.

13. Prior to commencement of development activities, the Airport shall file a performance bond with the City to complete restoration and maintain plantings for a five (5) year period.
14. The extent of development shall be restricted to those areas displayed on site grading plans to avoid additional impacts to wetland habitat and wetland and/or riparian buffers. Development boundaries shall be delineated (i.e., using wooden stake with highly visible environmentally-friendly paint) in the field prior to any ground-breaking activities.
15. Performance Criteria. Mitigation success for future project-specific HMMP(s) shall be determined, at minimum, by the following performance criteria:
 - All installed plants must achieve a 70 percent survival rate by the end of the first year, and an 80 percent survival rate of the remaining plants by the end of the fifth year.
 - Non-native invasive weeds must remain below 15 percent of the total vegetative cover at all times. Naturalized, non-invasive non-native grasses are not included in this performance criterion.
 - Native cover must be 75 percent after three years and 90 percent cover after five years.
 - All container plants and seeded areas must survive without supplemental irrigation for a minimum of two years.
 - No single species shall constitute more than 50 percent of the vegetative cover.
 - No woody invasive species shall be present and herbaceous invasive species, excluding naturalized, non-invasive grasses, shall not exceed five percent cover after five years.
 - Replacement plants shall be monitored for a minimum of three years to ensure successful establishment.

REFERENCES

- Airport (Santa Barbara Airport). 2017. Wildlife Hazard Management Plan. February 21, 2017.
- City of Santa Barbara. 1981. Local Coastal Plan. Amended July 1994 and November 2004.
- Dudek. 2016. Santa Barbara Airport Wildlife Habitat Assessment
- Dudek 2012a. Special-Status Species Inventory for the Santa Barbara Airport Master Plan Update
- Dudek 2012b. Wetland Inventory for the Santa Barbara Airport Master Plan Update
- GSMC (Goleta Slough Management Committee). 1997. Goleta Slough Ecological Management Plan
- GSMC. 2015. Goleta Slough Area Sea Level Rise and Management Plan
- USACE (U.S. Army Corps of Engineers). 2014. Arid West 2014 Regional Wetland Plant List. 2014 Update of Wetland Ratings. Phytoneuron 2014-41:1-42.



Future Taxiway H Pavement - 3.5 Acres
Future Taxiway Shoulder - 2.6 Acres
Taxiway H Disturbance Area - 12.4 Acres
(Does not include pavement to be removed)
Pavement to be removed - 1.14 Acres



Magnetic Declination
12° 45' 40" East (September 25, 2013)
Annual Rate of Change 5.7' W Per Year
0 100 200
SCALE IN FEET

SANTA BARBARA MUNICIPAL AIRPORT
TAXIWAY H
Santa Barbara, California

PLANNED BY: Eric S. Pfeiffer
DETAILED BY: Larry B. Johnson
APPROVED BY: James M. Harris, P.E.



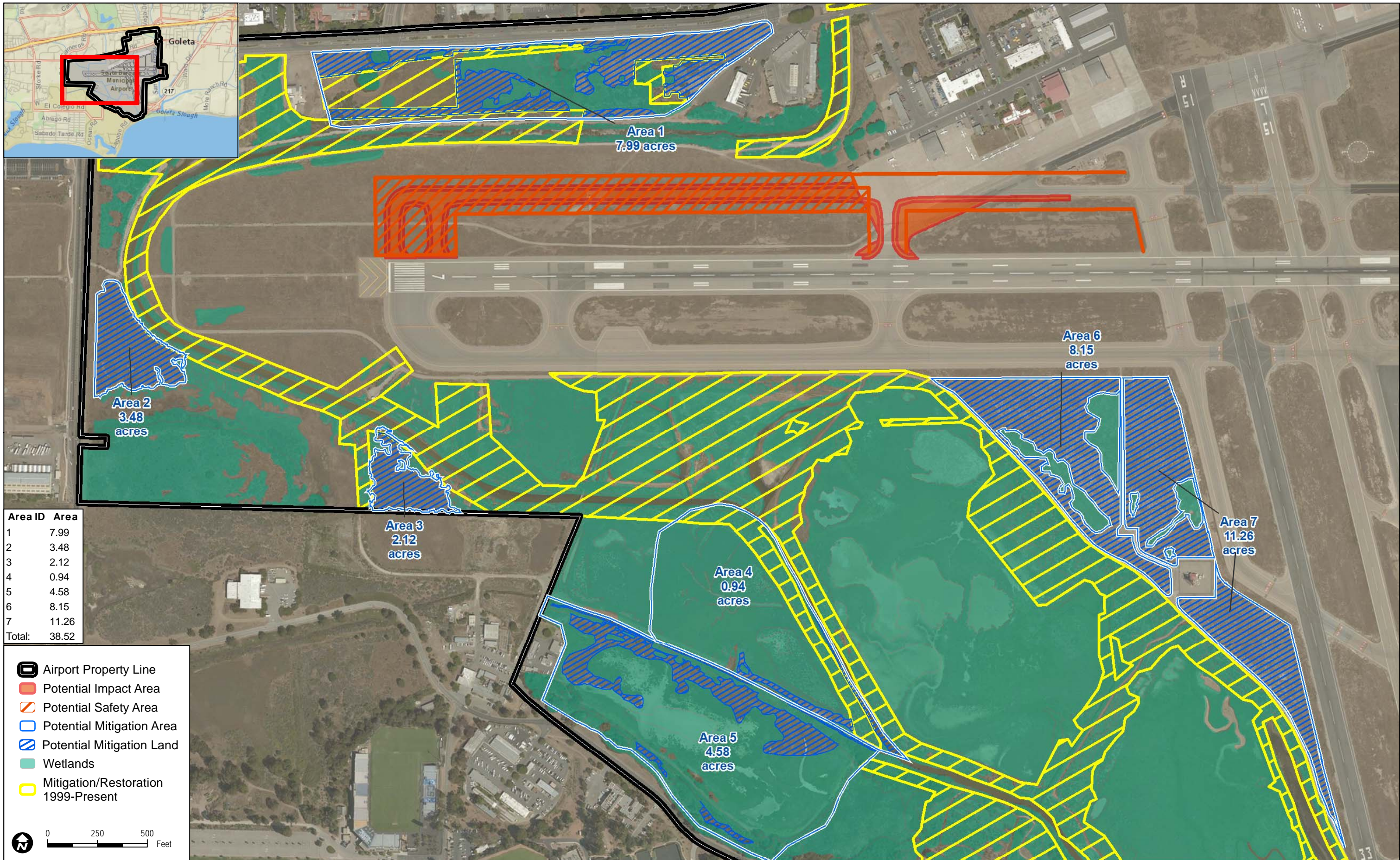
January 23, 2015

SHEET 1 OF 1

Santa Barbara Airport

1	Updated Airport Layout Plan	1/23/15	Coffman	-
2	Revalidated Airport Layout Plan (Approved)	2/9/09	M&H	FAA
3	Updated Airport Layout Plan (Approved)	6/11/97	M&H	FAA
No.	REVISIONS	DATE	BY	APP'D.
THE CONTENTS OF THIS PLAN DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE F.A.A. ACCEPTANCE OF THIS DOCUMENT BY THE F.A.A. DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.				

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SOURCE: Bing (Accessed in 2017), The Land Trust for SBCo 2011 (digitized), DUDEK 2012

DUDEK

FIGURE 1
Potential On-site Mitigation Areas